

REGIONAL REPORT



ONTARIO

The Trudeau Administration's proposed \$1 billion in cuts to defence spending is raising eyebrows in Ontario amidst rising global tensions.

BY PETER DIEKMEYER



Recent global events have created treacherous geopolitical environment for Canada and its allies, including the war in Ukraine, Russian jets buzzing northern regions, and bellicosity in the South China Sea. However, many Ontarians argue that their biggest challenge in meeting these threats isn't overseas; it's right here at home. The Trudeau Administration's \$1 billion in cuts to defence spending is raising eyebrows throughout Canadian Armed Forces stakeholders and associated industry partners.

"Our people see the degrading, declining security situation," Wayne Eyre, Chief of Defence Staff told a House of Commons standing committee in early October. "Trying to explain this is not easy," said David Perry, President of the Canadian Global Affairs Institute. He notes that the impact will spread far beyond the Canadian Armed Forces. "If cuts announced in 2023 are implemented as outlined in the Budget, this will lead to a large reduction in fleet maintenance and in-service support," he told CDR in an email. "This in turn will negatively impact domestic industry."

In compiling information for CDR's

annual report on key Ontario players, we have learned that the advent of "fifth generation warfare" – the kind favoured by many of Canada's adversaries – have left Canada vulnerable in ways that would have been unthinkable just a few decades ago. Fifth-generation warfare is warfare that is conducted primarily through non-kinetic military action, such as social engineering, misinformation, cyberattacks, along with emerging technologies such as artificial intelligence and fully autonomous systems.

TRACKING SHIPS

The challenges in explaining new threats posed by fifth generation warfare, which supplements traditional military tactics, stem from an increasingly weak national mainstream media which have left the public blissfully unaware of growing dangers.

Last month HMCS *Ottawa* sailed through the Taiwan Strait adjoining China's coast. Yet few thought to ask whether Chinese ships and submarines might one day retaliate by deploying in the Arctic. "There is an excellent case to be made for enhanced vigilance at Canada's key Eastern and Western entry points to northwest passages," says Eric

Meger, CEO of Maerospace, which recently produced a "proof of concept" capability that provides real time persistent awareness. "When you are standing on the beach you can see three miles out. Traditional coastal radars can look out perhaps 20 miles. Our technology currently monitors 41,000 square nautical miles at just one station."

Maerospace's 25 full time staff are leveraging the company's Newfoundland-based Cape Race demonstration system to market its Persistent Active Surveillance EEZ solution in Canada and abroad. "Canada has invested tens of millions of dollars in this technology and is positioned to deliver hundreds of millions if not billions of exports."

Meger views the Canadian Coast Guard as an ideal first potential domestic client. Its turnkey platform includes recently acquired northern radar antenna capability and an integrated container/shelter. "The system, which integrates AIS data with in-house predictive analytics and high frequency surface wave radar capabilities, creates excellent force multiplier effects." Meger, like many industry officials, notes that the Canadian government could accelerate



Credit: MCpl Nicolas Alonso, CAF

Minister of National Defence, Bill Blair, speaks to members of Op UNIFIER's UK Training Element on September 17, 2023

exports by speeding approvals related to dual use products. "We have been waiting for well over a year for one permit," says Meger. "That costs Canada jobs and dollars."

CYBER ATTACKS AGAINST CANADIAN INFRASTRUCTURE

Defending against fifth-generation warfare requires fifth-generation thinking. Case in point: the sabotage of the Nord stream pipeline between Russia and Germany. While three separate review panels failed to assign responsibility, Canadian military planners need to presume (as investigative journalist Seymour Hersh has reported) that (a) Canada's NATO ally the United States likely organized the attack and (b) that Russia, will be looking to retaliate in a similar non-direct way.

Canada, which was a major beneficiary of the destruction of the Nord Stream II pipeline through the upwards pressures on energy prices and the energy export opportunities they created, would seem to be a plausible retaliatory target. This could perhaps occur through a Russian cyberattack against Canadian energy infrastructure launched from a third country which would thus

provide plausible deniability.

The good news is that Palitronica, a small company made up of only 12 employees led by Dr. Sebastian Fischmeister, an engineering professor who is currently on a sabbatical leave from the University of Waterloo, was recently awarded \$1.2 million in federal funding to identify gaps in the current security posture for Canada's Ministry of Natural Resources regarding how to protect critical energy infrastructure from



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cyber threats.

"Supply chains are particularly important," Fischmeister told CDR. "Larger players often have more resources available to protect computer hardware and software infrastructure. However, suppliers with IT systems that are integrated could foster weaknesses that render that protection moot." Palitronica, which focuses on physics-based cyber security, also sells test stations that enable providers to make sure that there are no back doors in related electronic systems by checking "echos" to see if those system have been tampered with.

BEST DEFENCE CONFERENCE

Heather Pilot, President of Pilot-Hill, is one of Ontario's biggest boosters and was integral in organizing this year's Ontario report. Pilot, who organizes the Best Defence Conference which she describes as "a premier aerospace, defence and public safety event that supports the air, land, naval, C4ISR, and public safety capability domains," argues that Ontario's influence on Canada's ability to prepare for a fifth-generation battlespace stems from a range of key provincial assets.



Maersospace's turnkey solution is shipped in a container that doubles as an outside shelter

These include Ottawa, which is one of its largest cities and the country's key decision-making nexus, and Toronto, Canada's economic capital. According to Invest Ontario, the 300 businesses that form the core of the province's defence industry include three of the world's top defence contractors. Together these generate \$5.1 billion in annual revenues, employ nearly 14,000, and grab top talent

from 16 of Ontario's universities that offer engineering related programs.

Pilot notes that while local manufacturers ranging from Colt Canada to IMT Defence, and General Dynamics Land Systems-Canada have been major contributors to Canadian aid to the Ukraine, underutilized capacity remains available in key areas. Many of these can add value in a fifth-generation warfare environment. "Southern

Ontario has strong capabilities in cyber security, artificial intelligence and other technology niches that are increasingly prevalent in the modern battlespace," says Pilot. "Programs such as the Canada-Ukraine Security Innovation Challenge provide other opportunities to submit proposals on a range of national security challenges."

DIGITAL TWINS

Effective preparation for fifth-generation warfare requires leading edge back-end infrastructure. Earlier this year Datifex received approval to market groundbreaking technological solutions that provide the Royal Canadian Navy with "digital twin" modeling capabilities that map military operational activities. Datifex, which is small for such a high-impact operation, punches far above its weight. The company employs just 15 highly skilled professionals, including four in Ontario, where it was founded.

However, company CEO, Chris Erickson, quickly began taking on talent outside the province including Eastern Canada. "Our technology digitally transforms industrial operations through the use of engagement systems that manage complex



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According to Erickson, Datifex's technology can be used to manage complex assets, facilities and training



assets, facilities, and training," he notes. "Integrating data and 3D models in virtual environments through a single pane of glass facilitates the streamlining of how people leverage information."

Datifex's qualification for the Innovative Solutions Canada (ISC) Pathway to Commercialization (PTC) program will provide the company access to \$8 million in funding for an unlimited number of contracts, a capability that Erickson describes as a significant milestone. "We will soon be able to market our digital engagement system directly to the Government of Canada," he notes. "The Royal Canadian Navy, which can leverage digital dockyards that provide complete command and control awareness at installations such as CFB Esquimalt and for use in gamifying training of marine technicians will continue to be a prime beneficiary. However, we see the applications as having far wider use."

ARTIFICIAL INTELLIGENCE

Artificial Intelligence and related hardware, software and chip infrastructure have been

all the rage in financial markets. However, they also pose nightmarish defence related concerns and opportunities says Ryan Wallace, CEO at Lemay.ai, which has provided consultancy services on defence mandates related to everything from intercept strategies for rocket flight guidance systems, to deep learning models developed to classify RF signals and learning systems to facilitate battlefield situational awareness and decision support.

"We are working with a range of Canadian defence primes to develop custom capabilities," says Wallace. "A key focus has been internal AI capabilities which the Canadian government has identified as a key industrial capability."

Lemay.ai recently announced the development of a natural language diagnostic solution that will help specialized teams to troubleshoot complex maintenance, repair & overhaul, in-service support, and product engineering systems. "The tool ingests engineering and maintenance documentation and enables users to ask questions and be directed

to relevant answers contained within the documentation," says Wallace. "We expect to see significant demand and expanded use cases going forward."

NORAD MODERNIZATION

The increasing complexities involved in ramping up massive core military capabilities, such as NORAD modernization, are forcing major U.S. defence players such as RTX, whose subsidiary, Raytheon Canada, has a significant Ontario presence to scale up both in terms of size and in collaborations with other industry partners.

"Being part of the world's largest aerospace and defence company provides considerable advantages," says Terry Manion, Vice President and General Manager, Raytheon Canada. "Our three industry-leading businesses and Canadian-based subsidiaries facilitate continued expanded partnerships with the Canadian government and local customers."

For example, according to Manion, Raytheon Canada's continued partnership with Defence Research and Development

Canada in over-the-horizon radar (OTHR) research and development is generating good momentum for Ontario's defence players, many of whom the company is in continued discussions with related to their expertise and support, during the acquisition and In-Service Support phases in the coming years.

Raytheon Canada's Collins Aerospace Ottawa subsidiary, which produces world leading Wideband High Frequency (HF) communications, also recently got good news when it was announced that the company's ground HF business will be centralized at an Ottawa Centre of Excellence. That decision is expected to foster continued work alongside local research and academic institutions, and partnership with a range of engineering student co-op programs with local universities and technical colleges.

BREAKING-IN A NEW DEFENCE MINISTER

The Trudeau Administration's publicly threatened cuts to national defence have been exacerbated by a longtime industry complaint related to "shadow defence cuts." This practice, which has been adopted by all federal governments in recent decades, enables government officials of both parties



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to cripple programs by simply delaying progress on already announced initiatives.

"Shadow defence cuts" enable politicians to re-announce those same programs every few years without actually spending much money. A case in point is the F-35 fighter program which has been "re-announced" by all Canadian Prime Ministers dating back to the Paul Martin Administration nearly 20 years ago, without a single aircraft having been delivered.

However Darcy Byrtus, President of BMT Canada, a maritime-orientated high-end design house and technical consulting firm, argues that much of Canada's procurement

sluggishness stems from the sheer complexity of modern defence systems coupled with understaffing at key federal procurement related ministries – particularly in technical related areas. "Defence procurement is an exceptionally tough job that requires highly specialized skill sets that take a long time to develop," says Byrtus. The F-35 for example is said to include nearly 300,000 parts from more than 1,000 suppliers.

Byrtus should know. BMT Canada provides some of the top technical talent working on the Canadian Surface Combatant program, as well as its related submarine support initiatives, many of which interact directly with federal government procurement officials.

Government procurement challenges have been exacerbated by the recent cabinet shift which saw Bill Blair take over as Minister of National Defence, Anita Anand take over as President of the Treasury and Jean-Yves Duclos move over to the Minister of Public Services and Procurement position, the three government ministries most closely tied to defence procurement.

"The good news is that we have two assistant deputy ministers (Simon Page at PSPC, and Troy Crosby at DND) that have

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The Airbus H125 was shipped to the York Regional Police Air Support Unit in 2023

been there for a while, says Byrtus. “This will provide the institutional talent that will enable the new Ministers to be brought up to speed fairly quickly.”

SHIPBUILDING

Ontario’s defence industry’s surprising strengths also include dual use naval construction and maintenance facilities, an area generally regarded as the prime domain of eastern and western coastal contractors. One example is Heddle Shipyards which was recently awarded a \$130 million contract to

conduct Vessel Life Extension work related to the CCGS Terry Fox which is currently in the engineering and procurement phase.

Heddle Shipyards demonstrates a surprising range of capabilities related to servicing defence and civilian maritime requirements. For example, the company is bidding on a contract to build a Canadian Coast Guard Near Shore Fisheries Research Vessel. The company is also bidding on a Toronto Ferries replacement program for two fifty-meter fully electric vessels.

“We are putting together an all-star team

to offer a made in Ontario solution,” says Ted Kirkpatrick, Heddle Shipyards’ Director of Business Development and Government Relations. Heddle has also partnered with VARD, Thales, Fincantieri and SH Defence to submit a proposal for the construction of the *Kingston*-class replacement. “Team Vigilance, as we are known, will leverage global shipbuilding experience and cutting-edge modular mission systems to execute a fully designed and built-in-Canada solution for 12 offshore patrol vessels for the Royal Canadian Navy.”

This broadening of Heddle Shipyards’ capabilities would represent a significant advance for Ontario’s naval industry. “It’s by far the best opportunity we are currently targeting under the federal government’s National Shipbuilding Strategy,” Kirkpatrick told CDR. “If successful, we will create billions of dollars of economic activity in Ontario for a decade or more.”

HELICOPTERS

According to Dwayne Charette, President Airbus Helicopters Canada – which is headquartered in Fort Erie, Ontario – the province’s capabilities in rotary aircraft recently got a significant boost this summer when the Government of Canada announced it had selected SkyAlyne as the

Heddle Shipyards is part of Team Vigilance, which is proposing a replacement option for the *Kingston*-class MPV





"It's going to be an interesting year," says Allen-Vanguard's Drover

preferred bidder for the Future Aircrew Training project (FACT).

That's great news for Airbus Helicopters Canada, which is a member of the SkyAlyne team for which it has proposed the H135 as its platform for rotary-wing advanced pilot training. "We look forward to working with the RCAF on this critical capability," said Charette. "The move bodes well for both Ontario as a whole and for our 250 employees."

Indeed, Airbus Canada's Fort Erie facility, which is a centre of excellence for engineering and composite manufacturing and is the sole source supplier on eight different Airbus helicopter types flying all over the world, appears to have an exceptionally bright future – particularly on the export front. Its repair & overhaul department provides services and dynamic component repair to Airbus helicopter operators worldwide for the light single engine product ranges. Today, more than 50% of the workforce in Fort Erie works on export products.

Charette claims that 85% of helicopters used for airborne law enforcement in Canada during the past 15 years are Airbus branded helicopters and that 100% of airborne law enforcement aircraft deliveries made in Canada during that time have been Airbus aircraft. These include a new state-of-the-art H125 with cutting edge Law Enforcement technology that was shipped earlier in 2023, to the York Regional Police Air Support Unit.

Airbus Helicopters Canada is also closely monitoring the developments of future programs such as the Next Tactical Aviation Capability Set (nTACS) program that is looking at the vertical lift capability for the RCAF beyond the life of the Griffon fleet.

COUNTER IED SYSTEMS

With the resurgence of active conflict between Gaza - a Palestinian territory - and Israel, the specter of asymmetric

warfare has been renewed. At press time, it was not clear whether Israel, which boasts one of the world's strongest militaries and is equipped with some of the most advanced defence technology, would re-invade and reoccupy the Gaza strip. However, if they do, a major threat they could face are Improvised Explosive Devices (IEDs).

These developments come at an odd time for the folks at Allen-Vanguard, which designs, and builds world class Counter IED systems, but which in recent months has been looking for new ways to add value. "It's going to be an interesting year," says Steve Drover, the company's Director of Business Development, Canada. "We are expecting major changes."

Allen-Vanguard has also been moving forward with its next generation of Electronic Counter Measures systems. EQUINOX NXT and SCORPION NXT, the two major platforms will share a common architecture and will not only provide a protection or shield capability, but will also both have the ability to sense the RF environment and identify threats of interest. "We will provide a clear picture of what the battlespace is looking like from an RF perspective," Drover told CDR. "Both systems will have the ability to act on threats identified and deny the use of the RF environment to people planning on doing bad things." Allen-Vanguard officials have also been working with the UK Ministry of Defence where they were awarded Defence and Security Accelerator (DASA) funding to develop remote radio head technology.

Drover however, is less pessimistic than consensus regarding the Trudeau Administration's proposed cuts. "I believe smarter spending can be a positive," says Drover. "We would like to see more investment into small companies like Allen-Vanguard that have a world reach. We employ Canadians and everything we do and build is reinvested into our own country. It's time for a review of how defence funds are spent and more pressure for Canadian funds to be invested into Canadian innovation and products."

The Best Defence Conference will take place on November 15th and 16th at RBC Place London, in London Ontario. ■

Peter Diekmeyer is CDR's Quebec Bureau Chief

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